

Claims

1. A thermal processing chamber for processing individual product items, said processing chamber comprising:
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- a conveyor for conveying the product items in the chamber, said conveyor comprising:
 - a conveyor belt forming an endless loop with a processing part and an idling part, the conveyor belt comprising a plurality of thermal conductive elements, each of the
 - 10 elements being adapted to obtain a first orientation in the processing part of the loop and adapted to obtain a second orientation in the idling part of the loop, the first orientation providing a substantially plan and continuous surface for supporting the product items across at least a number of the elements, and
 - power driven means for advancing the conveyor belt,
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- wherein the thermal processing of the product items is performed by a thermal convection from the elements to the product items.
2. A thermal processing chamber according to claim 1, further comprising means for
- 20 providing a thermal media to the chamber.
3. A thermal processing chamber according to claim 2, wherein the thermal media is a gas.
- 25 4. A thermal processing chamber according to claim 3, wherein the second orientation of the elements provides a passage between the elements so as to allow the gas to flow between the elements.
5. A thermal processing chamber according to claim 4, wherein the second orientation is
- 30 adjustable so that the size of the passage is adjustable whereby the amount of gas flowing between the elements can be controlled.
6. A thermal processing chamber according to any of the preceding claims, wherein the
- 35 thermal conductive elements are parallel arranged elongated beams having a wing formed cross sectional shape.

7. A thermal processing chamber according to any of claims 2-6, wherein the thermal processing of the product items is performed by a combination of a first thermal
5 convection from the elements to the product items and a second thermal convection from the thermal media to the product items.

8. A thermal processing chamber according to any of claims 2-7, wherein the elements are being thermally influenced by a third thermal convection from the thermal media to the
10 elements.

9. A thermal processing chamber according to any of claims 2-7, wherein the thermal media is being thermally influenced by a fourth thermal convection from the elements to the thermal media.

15 10. A thermal processing chamber according to any of the preceding claims, wherein the thermal processing is freezing of the product items and wherein the thermal media is a cooling media.

20 11. A thermal processing chamber according to claim 10, wherein the cooling media is selected from a group comprising:

- plain air,
- CO₂, and
- 25 – nitrogen.

12. A thermal processing chamber according to claim 10 or 11, wherein the elements are cooled electrically.

30 13. A thermal processing chamber according to any of claims 1-9, wherein the thermal processing is heating and wherein the thermal media is heated gas.

14. A thermal processing chamber according to claim 12 or 13, wherein the elements are heated by electricity.

15. A thermal processing chamber according to any of the preceding claims, wherein the elements are made from a thermal conductive material.
- 5 16. A thermal processing chamber according to claim 15, wherein the thermal conductivity of the material is between 30 and 230 W/(K*m), such as between 209 W/(K*m) and 229 W/(K*m).
- 10 17. A thermal processing chamber according to any of the preceding claims wherein the elements are made from aluminium.
18. A thermal processing chamber according to any of the preceding claims, wherein the elements are coated with a material with a low surface friction.
- 15 19. A thermal processing chamber according to any of the preceding claims, wherein the elements are adapted to rotate from the first orientation to the second orientation upon movement of the elements in the endless loop from the processing part to the idling part of the loop and wherein the elements are adapted to rotate back from the second position to the first position upon movement of the element in the endless loop from the idling part
20 to the processing part of the loop.
20. A thermal processing chamber according to claim 19, wherein the rotation is driven by gravity.
- 25 21. A thermal processing chamber according to any of the preceding claims, further comprising an additional conveyor with a conveyor belt forming an endless loop, the conveyor belt having a partly open surface towards the thermal media.
22. A thermal processing chamber according to any of the preceding claims, wherein the
30 product items are food items.
23. A method of thermally processing product items in a thermal processing chamber provided with a thermal media, said method comprising the steps of:

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- conveying the product items through the chamber on a plurality of thermally conductive elements,
- thermally processing the product by providing a thermal convection from the elements to the product items, and
- 5 - simultaneously providing a thermal convection from the thermal media to the product items.

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